

WHAT IS CLAIMED IS:

1. A method for controlling a plurality of server chassis cooling fans, comprising:

monitoring operating temperatures associated with each of a plurality of temperature sensors, the temperature sensors being coupled with a plurality of respective server processing cards; and

increasing the operating speed of each of a plurality of server chassis cooling fans coupled with a server chassis in response to an operating temperature greater than or equal to a predetermined maximum operating temperature measured at any one of the plurality of temperature sensors.

2. The method of Claim 1, further comprising decreasing the operating speed of each of the plurality of server chassis cooling fans in response to an operating temperature less than or equal to a predetermined minimum operating temperature measured at each of the plurality of temperature sensors.

3. The method of Claim 2, wherein the minimum operating temperature is equal to the maximum operating temperature.

4. The method of Claim 1, further comprising activating a fan shutdown timer for a predetermined time period at each of the plurality of server processing cards having an operating temperature less than or equal to the predetermined maximum operating temperature.

5. The method of Claim 4, further comprising decreasing the operating speed of each of the plurality of fans in response to a condition in which none of the operating temperatures are greater than or equal to the predetermined maximum operating temperature, and none of the plurality of server processing cards include an active fan shutdown timer.

6. The method of Claim 4, further comprising resetting the fan shutdown timer at each server processing card having an active fan shutdown timer and measuring an operating temperature greater than or equal to the predetermined maximum operating temperature.

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7. A method for controlling a plurality of server chassis cooling fans, comprising:

transmitting a first request to a server processing card controller to read a first operating temperature measured at a first temperature sensor;

receiving the first operating temperature at a central processing unit;

comparing the first operating temperature with a first predetermined maximum operating temperature; and

transmitting a second request to a plurality of server chassis cooling fans to increase the speed of the server chassis cooling fans if the first operating temperature is greater than or equal to the first predetermined maximum operating temperature.

8. The method of Claim 7, further comprising receiving second and third operating temperatures at the CPU, the second and third operating temperatures being associated with second and third temperature sensors, respectively;

comparing the second and third operating temperatures with second and third predetermined maximum operating temperatures, respectively; and

transmitting the second request to increase the speed of the server chassis cooling fans if the second or third operating temperatures are greater than or equal to the second and third predetermined maximum operating temperatures, respectively.

9. The method of Claim 8, wherein at least two of the first, second and third predetermined maximum operating temperatures are equal.

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14. A server processing card, comprising:  
a printed circuit board;  
a central processing unit coupled with the printed  
circuit board;

5 a controller coupled with the central processing  
unit, the controller operable to read a first operating  
temperature from a first temperature sensor and transmit  
the operating temperature to the central processing unit;  
and

10 wherein the central processing unit is operable to  
transmit a signal to a component of a server chassis to  
increase an operating speed of fans if the operating  
temperature is greater than or equal to a predetermined  
maximum temperature.

15 15. The server processing card of Claim 14, further  
comprising a PCI bus coupling the central processing unit  
and the controller.

20 16. The server processing card of Claim 14, further  
comprising a sensor chip coupled with the controller, the  
sensor chip being operable to periodically record and  
store the operating temperature.

25 17. The server processing card of Claim 14, further  
comprising an I<sup>2</sup>c bus coupling the controller and the  
sensor chip.

30 18. The server processing card of Claim 14, wherein  
the temperature sensor is integral to the central  
processing unit.

19. A midplane printed circuit board, comprising:

a plurality of server processing card connectors configured to receive a plurality of respective server processing cards;

5 a cable connector configured to receive a communication wire for coupling the midplane printed circuit board with a plurality of fan control modules associated with a plurality of respective fans; and

10 wherein the printed circuit board includes a module operable to transmit a control signal to the fans in response to receiving an indication from any one of the plurality of server processing cards of a high operating temperature measurement, wherein the control signal is  
operable to increase the speed of each of the plurality  
15 of fans.

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20. A system, comprising:

a plurality of server processing cards each having a respective central processing unit and temperature sensor;

5 the central processing units being operable to read operating temperatures measured at the temperature sensors;

10 a printed circuit board coupling each server processing card with a plurality of server chassis cooling fans; and

15 wherein each of the plurality of server chassis cooling fans is operable to increase speeds of rotation in response to a signal from any of the server processing cards indicating an operating temperature greater than or equal to a predetermined maximum operating temperature.

20 21. The system of Claim 20, wherein the plurality of server processing cards comprises a first number of server processing cards and the plurality of cooling fans comprises a second number of cooling fans and wherein the first number is greater than the second number.

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22. A computer readable medium encoded with logic operable to:

transmit a first request to a server processing card controller to read an operating temperature measured at a temperature sensor;

receive the operating temperature at a central processing unit;

compare the operating temperature with a predetermined maximum operating temperature; and

transmit a second request to a plurality of server chassis cooling fans to increase the speed of the server chassis cooling fans if the operating temperature is greater than or equal to the predetermined maximum operating temperature.

23. The computer readable medium of claim 22, wherein the logic is further operable to receive, at the controller, the operating temperature from a sensor chip.



24. A computer readable medium encoded with logic operable to:

monitor operating temperatures associated with each of a plurality of temperature sensors, the temperature sensors being coupled with a plurality of respective server processing cards; and

increase the operating speed of each of a plurality of server chassis cooling fans coupled with a server chassis in response to an operating temperature greater than or equal to a predetermined maximum operating temperature measured at any one of the plurality of temperature sensors.

25. The computer readable medium of Claim 24, wherein the logic is further operable to decrease the operating speed of each of the plurality of server chassis cooling fans in response to an operating temperature less than or equal to a predetermined minimum operating temperature measured at each of the plurality of temperature sensors.

26. The computer readable medium of Claim 24, wherein the logic is further operable to activate a fan shut-down timer for a predetermined time period at each of the plurality of server processing cards having an operating temperature less than or equal to the predetermined maximum operating temperature.

27. The computer readable medium of Claim 26,  
wherein the logic is further operable to decrease the  
operating speed of each of the plurality of fans in  
response to a condition in which none of the operating  
5 temperatures are greater than or equal to the  
predetermined maximum operating temperature, and none of  
the plurality of server processing cards include an  
active fan shutdown timer.

10 28. The computer readable medium of claim 27,  
wherein the logic is further operable to reset the fan  
shutdown timer at each server processing card having an  
active fan shutdown timer and measuring an operating  
15 temperature greater than or equal to the predetermined  
maximum operating temperature.

29. A system for controlling a plurality of server chassis cooling fans, comprising:

means for monitoring operating temperatures associated with each of a plurality of temperature sensors, the temperature sensors being coupled with a plurality of respective server processing cards; and

means for increasing the operating speed of each of a plurality of server chassis cooling fans coupled with a server chassis in response to an operating temperature greater than or equal to a predetermined maximum operating temperature measured at any one of the plurality of temperature sensors.

30. The system of Claim 29, further comprising means for decreasing the operating speed of each of the plurality of server chassis cooling fans in response to an operating temperature less than or equal to a predetermined minimum operating temperature measured at each of the plurality of temperature sensors.

31. The system of Claim 29, further comprising means for activating a fan shutdown timer for a predetermined time period at each of the plurality of server processing cards having an operating temperature less than or equal to the predetermined maximum operating temperature.

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33. The system of Claim 31, further comprising resetting the fan shutdown timer at each server processing card having an active fan shutdown timer and measuring an operating temperature greater than or equal to the predetermined maximum operating temperature.

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34. A system for controlling a plurality of server chassis cooling fans, comprising:

means for transmitting a first request to a server processing card controller to read an operating temperature measured at a temperature sensor;

means for receiving the operating temperature at a central processing unit;

means for comparing the operating temperature with a predetermined maximum operating temperature; and

means for transmitting a second request to a plurality of server chassis cooling fans to increase the speed of the server chassis cooling fans if the operating temperature is greater than or equal to the predetermined maximum operating temperature.

35. The system of Claim 34, further comprising means for receiving, at the controller, the operating temperature from a sensor chip.

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